**AMENDMENTS TO THE CLAIMS:**

Please amend claims 38 and 42 and add newly written claim 46 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-23 (cancelled).

24. (previously presented) A method of producing an integrated ferroelectric device comprising a first layer of material capable of existing in a ferroelectric state and a second layer of material defining an integrated circuit, said method comprising the steps of:

producing a pulse of energy having a first temporal width;

extending said first temporal width of said pulse by passing said pulse through a temporal extender to produce a processed pulse having a greater temporal width than said first temporal width; and

illuminating said first layer with said processed pulse to convert some or all of said material in said first layer from a non-ferroelectric state into a phase capable of exhibiting ferroelectricity or otherwise improving the quality of said material of said first layer without exceeding the temperature budget of said integrated circuit of said second layer.

25. (previously presented) A method to according claim 24 wherein said method further comprises generating more than one of said processed pulses and sequentially illuminating said first layer with said processed pulses.

26. (previously presented) A method according to claim 24 wherein said material of said first layer comprises a low grade deposited perovskite and said method improves the quality of said perovskite material.

27. (previously presented) A method according to claim 24 wherein said first layer includes material deposited in a non-perovskite phase and said method converts some or all of the material into said perovskite phase.

28. (previously presented) A method according to claim 24 wherein said pulse of energy comprises a pulse of energy produced using a laser.

29. (previously presented) A method according to claim 28 wherein said pulse produced by said laser has a temporal length between 10ns and 25ns.

30. (previously presented) A method according to claim 1 wherein said temporal extender increases the temporal length of said pulse to produce a processed pulse with a temporal length of approximately 300ns, or between substantially 300ns and 400ns, or longer.

31. (previously presented) A method according to claim 24 wherein said processed pulse comprises more than one sub-pulse, each of said sub-pulses corresponding to a pulse action of said extender.

32. (previously presented) A method according to claim 24 wherein said processed pulse has a fluence and temporal width that is compatible with properties of said material of said first layer such that the temperature throughout said layer (or over a substantial depth of said first layer) exceeds a predetermined anneal temperature whilst the temperature of said second layer is within said temperature budget of said circuitry.

33. (previously presented) A method according to claim 24 wherein said first layer comprises a top layer of said device.

34. (previously presented) A method according to claim 24 wherein two different sources of energy are produced, each source producing a respective pulse and at least one of said respective pulses being extended by a pulse extender to produce a processed pulse, and wherein said first layer is illuminated by both pulses.

35. (previously presented) A method according to claim 34 wherein said layer is illuminated by both pulses substantially simultaneously.

36. (previously presented) A method according to claim 34 which further comprises providing a metallic layer between said first layer and said second layer and illuminating said first layer with the two different processed pulses.

37. (previously presented) A method according to claim 24 wherein said first layer is illuminated with said processed pulse whilst said ambient temperature of said device is maintained higher than room temperature.

38. (currently amended) An apparatus for producing an integrated ferroelectric device from an initially non-ferroelectric device, said initially non-ferroelectric device comprising at least a first layer of non-perovskite phase material ~~capable of existing in a perovskite phase~~ having a thickness greater than 2000 Å and second layer of material defining an integrated circuit, said apparatus comprising:

pulse generating means for generating a pulse of energy having a first temporal width;

pulse extending means for extending said first temporal pulse width of said pulse to provide a processed pulse of greater temporal width;

and guide means for guiding said processed pulse of energy onto said first layer, said pulse generating means and said pulse extending means providing sufficient energy to anneal at least a portion of said non-perovskite phase material into perovskite phase material.

39. (previously presented) Apparatus according to claim 38 which further comprises depositing means for depositing said first layer of material above said second layer in which some or all of said first layer is in a non-perovskite phase.

40. (previously presented) Apparatus according to claim 38 wherein said pulse generating means comprises a laser.

41. (previously presented) Apparatus according to claim 40 wherein said laser has a wavelength in the ultraviolet spectrum.

42. (currently amended) Apparatus according to claim ~~38~~39 wherein said depositing means is adapted to deposit a first layer of material above said second layer after one or more intermediate layers are deposited onto said second layer.

43. (previously presented) Apparatus according to claim 42 wherein one of said intermediate layers comprises a sacrificial layer.

44. (previously presented) Apparatus according to claim 38 wherein said pulse extender is adapted to increase said temporal pulse width of said first pulse by substantially at least two times.

45. (previously presented) Apparatus according to claim 38 wherein said pulse extender is adapted to produce a processed pulse that comprises a plurality of sub-pulses.

46. (new) An apparatus for producing an integrated ferroelectric device, said device comprising at least a first layer of material capable of existing in a perovskite phase and second layer of material defining an integrated circuit, said apparatus comprising:

pulse generating means for generating a pulse of energy having a first temporal width;

pulse extending means for extending said first temporal pulse width of said pulse to provide a processed pulse of greater temporal width;

and guide means for guiding said processed pulse of energy onto said first layer; and

depositing means for depositing said first layer of material above said second layer in which some or all of said first layer is in a non-perovskite phase.